project WEB

winter 2004

Connecting Projects WILD, WET and Learning Tree in New Hampshire

There's No Place Like Home

As Dorothy so aptly put it in *The Wizard of Oz*, "There's no place like home." Every animal needs a home, or more appropriately, a habitat. While humans most often think of home as a built structure where people live, home (or habitat) for an animal is more like a neighborhood that has everything in it that is needed for survival — food, water, shelter and space.

The concept of "habitat" is part of many schools' curricula. Many textbooks and educational resources emphasize intriguing global habitats such as deserts, rainforests and the African savanna — leaving many students unaware of the equally amazing local habitats in their own backyard. In New Hampshire, we are blessed with a myriad of natural-community types that offer valuable habitat to more than 15,000 species of animals. Yet, how much do your students know about the habitat offered by our state's spruce-fir and oak-pine forests or the krummholz area at high elevations? The state's abundant aquatic habitats — from salt marsh and pond to swamps, bogs and high-elevation streams — provide ample opportunity for your students to study an authentic habitat in their own backyard. We hope this issue of Project WEB provides you with inspiration and ideas for studying the habitats of the Granite State.

Habitat Is Where It's At for Wildlife

(excerpted from *Homes for Wildlife: A Planning Guide for Habitat Enhancement on School Grounds* by Marilyn Wyzga)

What do we have in common with bears, loons, snakes and caterpillars? We all need a place we can call "home" in order to survive. Four basic components make up a healthy home. They are food, water, cover (or shelter) and space, all arranged so we can make the most of each.

The size and health of a wildlife population is largely determined by these available resources, collectively referred to as the animal's habitat. Although there may be considerable overlap in the habitat requirements of two or more similar species, each has its own requirements.

Optimum habitat for one species may not be optimum for another. The gray squirrel uses acorns for food, while the woodpecker eats insects, although both live in the treetops. Mallards use thick grass and forb (herbaceous) cover for nesting, while wood

continued on next page

Habitat can be altered to encourage use by a variety of species.

IN THIS ISSUE

Fisher "Myth-Conceptions":

Have you ever seen a fisher cat? You may, if you enjoy minor league baseball and go to see the new team play in Manchester, N.H., next summer! An array of mythological tales has arisen around the elusive creature known colloquially as the fisher cat. You might say it's "the cat that isn't and doesn't," for the fisher is not a cat and rarely fishes. This dark brown, 12- to 20-pound weasel typically inhabits deep woods, where it preys on small mammals, birds and — its claim to fame — porcupines. The fisher's name is a transmutation of "fissel," the Old French word for polecat, which it resembles. For more insights into the fisher cat, the coy dog, and other mysterious New England species, read Warner Shedd's "Owls Aren't Wise and Bats Aren't Blind."

continued from previous page

ducks nest in tree cavities.

All four basic needs must be met within an area in the proper arrangement, or the species will not exist there. For example, even though woodlands offer water, brushy cover and abundant space, you wouldn't expect to find a woodchuck living there, since the food it depends on, mostly grasses, is found in fields.

Meeting Habitat Needs

Habitat requirements for wildlife change during the seasons of the year. The foods they eat in the winter may be very different from what is consumed in the summer. The cover they need for nesting may be quite different from the cover needed to survive a winter storm. Needs may also change with the sex and age of the animal.

Many wildlife species have special ways of meeting their four basic needs. To avoid a winter scarcity of food, for example, some animals hibernate, others migrate to other food sources, while others store food. Some species may require certain conditions of temperature, salinity, humidity, intensity of light or other factors, in addition to meeting the four basic needs:

Food

All animals must eat other animals and/or plants to survive. Some animals eat a great variety of food items, while others eat only a few types of food. The diets of most animals change with the seasons, as different foods become available and as their needs vary. Mast – the fruit of nut-bearing trees, such as acorns from oak trees or beechnuts from beech trees – is a good example of periodically abundant food. Squirrels and blue jays store acorns for later use; deer and bear develop a thick layer of fat (stored energy for winter) through feeding on nuts in the fall. Seasonally abundant berry crops are also important to wildlife.

Water

Water, as found in springs, beaver ponds, marshes, creeks, swamps, lakes and rivers, is a vital component of habitat. Though not all kinds of animals need standing water, water is an essential requirement for all wildlife. Some get the water they need from their food or from dew. Some require water for special needs during certain phases of the life cycle. Amphibians, for example, need water for the development of their eggs and young, and most birds need to be near water when nesting.

Cover

Cover, or shelter, is the protective element within an animal's habitat. Most wildlife will not stay for long in unprotected sites where they are exposed and vulnerable to predation or extreme weather conditions. Birds and other animals constantly seek protective cover, whether they are foraging for food, taking care of their young or simply resting. Cover may be a hedgerow for a rabbit or a spruce tree for a golden-crowned kinglet. Many migrating bird species seek heavily vegetated areas as stopover resting and feeding sites. Vegetation like trees, shrubs, grasses and flowers; structures like rock piles and brush piles; slow water and burrows in the ground are just some of the forms of protective cover used by wildlife. Tall grasses, dense shrubs, leaf litter on the ground, evergreen boughs, high leafy tree canopies, downed logs, stumps and cavities in decaying trees also all provide valuable cover for a variety of wildlife.

Space

Space, or home range, is the area occupied by an individual, a family group or a social group, within which the needs for food, water and cover can be met. The size of this living space depends on body size and food habits. Consequently, certain wildlife need more space than others. A few square feet may be adequate for a field mouse, while a bear may need a few thousand acres.

Habitat components must be arranged in a way that makes them accessible to the animal. Consider a painted turtle that must cross a highway to find dry sand or gravel in which to lay its eggs, or a deer that must cross a wide, swift river to reach appropriate forest cover that is critical for its winter survival.

Disappearing Habitat

Loss of habitat is the greatest threat to wildlife today. Increasing human populations and the accompanying development of housing, factories, shopping centers and roads all encroach on wildlife habitat. Any development of an area has an impact on the wildlife and plants that live there. When we develop an area, it is our responsibility to consider the impact our actions will have on the habitats of the wildlife that live there. In many cases there are alternatives that would meet our development needs that would have less impact on the wildlife of an area. It is important to consider all the alternatives when making the decision of locations to develop. Are we filling the only vernal pool in the area, clearing critical cavity trees or harvesting the spruce and fir trees of a winter deer yard? Careful planning of development is critical to ensure there will continue to be habitat for diverse and abundant wildlife. WEB

HABITAT-RELATED TERMS

abiotic: non-living components in an environment, such as light, water and temperature

biotic: the living components in an environment; all the animals and plants

buffer zone: a natural area separating two different or conflicting areas, that minimizes the impact of one upon the other; for example, a strip of forest running parallel to a highway reduces the sound and visual impact the highway has on the environment beyond the trees

carrying capacity: the limit of the number of animals that can be sustained on an area of land; the limit is determined by the quantity and quality of food, water, shelter and space

community: a group of animals and plants that live and interact with each other in a specific region and under similar environmental conditions

edge effect: the tendency of wildlife to use the transition zone that exists where two vegetative types meet, such as the area where a field borders or meets a forest

habitat: the area in which an animal lives, in which the suitable components of food, water, shelter (or cover) and space are found in a proper arrangement

limiting factor: influence on a wildlife population that prevents it from getting any larger; frequently it is a specific habitat component that is in the shortest supply, but can also be disease, predation, climatic conditions, pollution, hunting and accidents

niche: the function an organism serves and the position it holds in an ecological community

riparian: relating to or located on the banks of a stream, river or body of water

Habitat Managers' Toolbox

What habitat managers consider when making their decisions

By Darrel Covell,
Assistant Extension Professor and Specialist, Wildlife, University of New Hampshire Cooperative Extension

All wildlife need good habitat to survive and thrive. But what is good for one species may not be good for another. So wildlife habitat managers are always trying to balance the habitat needs of many species, considering both the target species for which they are managing and species of conservation concern that might be present. By manipulating or managing the four components of habitat — food, water, space and shelter — habitat managers improve the habitat for the target species. Here are a few things that habitat managers think about when developing a management plan.

Habitat Inventory

What have you got for habitat? A habitat manager first wants to look at a cover-type map, a topographic map, an aerial photo, maybe a soils map and perhaps a forest-type map if a forester has done a timber cruise already. Conducting a site visit to get a "feel" for what is actually on the ground also provides invaluable information. Based on the habitat inventory, a manager can make an educated guess about what wildlife species potentially exist on the property.

Significant Wildlife Habitat

Once you have looked at the maps, and during your site visit, it is helpful to keep certain significant wildlife habitat in mind. For example, you may want to make notes on a map of where you found the following special habitat features and critical habitats (these are just a few):

- dense, mature softwood stands (e.g., deer wintering areas)
- active, large stick nests
- standing dead trees (snags) with diameters 18 inches or more
- areas of fallen/decaying logs with diameters 18 inches or more
- observed or documented wildlife travel corridors
- extensive grasslands of 25 acres or more
- concentrations of vernal pools
- riparian areas, especially larger streams, rivers, lakes and ponds

Wildlife Inventory

Sometimes, but not always, an inventory of the wildlife using the property will provide good information that will guide the development of a habitat management plan. Inventories vary depending on the objective. For example, if you want to develop a plan that addresses the needs of breeding birds, then you would want to conduct some bird surveys in June, listening and looking for all bird species using the property. If you were genuinely interested in managing your property for carnivores like bobcat and fisher, you may want to do a snow track survey in the winter.

Species of Conservation Concern

Managers often consider managing a property for those wildlife species whose populations are not doing so well. In biologist lingo, these are called "species of conservation concern." We have lists of these species that are rare, have declining numbers or are threatened by loss of habitat. A land manager can take these "priority species" lists, determine which ones are in the area or have potential on the property and develop habitat to meet those species' needs. Check with N.H. Fish and Game's Wildlife Division (603-271-2461 or wilddiv@wildlife.state.nh.us) for such species lists. WEB

The New Hampshire Coverts Project:

Volunteers Working for Wildlife

Did you know that a network of volunteers is working for wildlife in more than 100 New Hampshire towns? The N.H. Coverts Project trains volunteers to promote wildlife habitat conservation and forest stewardship through outreach in their communities.

The goals of the Coverts Project are to enhance and conserve New Hampshire's wildlife habitat, and to increase the amount of New Hampshire's public and private land managed with a stewardship ethic. "Coverts Cooperators" are landowners, teachers, business people, writers, local decision-makers — people willing to share their experiences and motivate others. The name of the program, "covert," (pronounced "cover" with a "t") comes from the name of a thicket that provides shelter for wild animals.

PHOTO BY MALIN CLYDE

Covert volunteer John Severance teaches at a 2001 workshop.

So how can Coverts help you? Coverts volunteers are located in every county in New Hampshire. They each have different skills and may volunteer to help you in different ways. For example, Coverts Cooperators may:

- Give you a tour of their own property (or property they manage), demonstrating different ways to manage land for wildlife habitat.
- Introduce you to local land protection initiatives such as regional greenways or local Land and Community Heritage projects.
- Offer a program to local schools or youth groups using Cooperative Extension's Wildlife Kits.
- Share resource notebook materials with you.
- Put you in touch with natural resource professionals for help with stewardship, forestry or wildlife management on your land.

To request help from a Coverts Cooperator, please contact Malin Clyde, the program coordinator, at malin.clyde@unh.edu or (603) 862-2166. For more information about the program, please visit http://ceinfo.unh.edu/forestry/documents/nhcoverts.htm. WEB

— RARE HABITATS IN

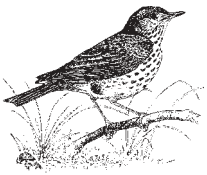
New Hampshire is home to several habitats that are distinctive because of the unusual factors that combine here to create them — most notably, climate, geography/elevation and soil conditions. Here are the nuts and bolts on some of these rare New Hampshire habitats.

Alpine tundra

New Hampshire's White Mountains are home to the largest and most diverse alpine area east of the Rockies and south of Canada. Approximately 11 different alpine communities occur on the isolated summits of the state's highest elevations. In a sense,

Alpine zones are found in New Hampshire over 4,000 feet.

these areas are islands in the surrounding upland forests. The state's alpine tundra contains several unique species, including Robbins' cinquefoil (endemic to the White Mountains), Mountain avens, Boott's rattlesnake-root, Bicknell's thrush, *diapensia* and moss campion.



Bicknell's thrush

The alpine tundra is defined as the high-elevation area found about treeline. Trees are absent from this area because of the force of the intense persistent winds. Any plants that are found here are low-lying (to escape the winds and retreat under the snow's insulation in winter) and often grow in cushion-like clumps. Conditions are severe in winter because of cold temperatures, high winds and often persistent cloud cover. Yet, these same areas often bloom with wildflowers, insects and birds in summer.

Pine barrens

Pine barrens are areas characterized by very sandy, acidic soils that drain quickly

Karner blue butterfly, endangered pine barrens resident.

after rain. Species that are found in this habitat, including pitch pine, scrub oak and numerous moths and butterflies associated with them (e.g. the Persius dusky-wing and frosted elfin butterflies), thrive in these harsh conditions and thus are uniquely adapted to living here. Historically, pine barrens were found throughout the lower Merrimack Valley (Concord to Nashua), but because of recent development pressures, few stands now exist there. The most notable functional pine barrens system remaining in New Hampshire is found in Ossipee.

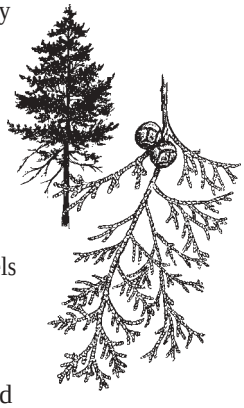
Pine barrens are one of the rarest forest types in New Hampshire. The existence of many of the plant species associated with pine barrens relies heavily on the occurrence of fire in these areas to keep the ground free of much of its overstory, allowing sunlight

Prescribed burn on Karner blue refuge.

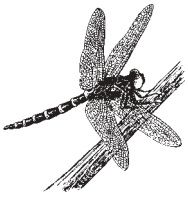
to penetrate to the forest floor. However, today, as humans suppress fires in these areas, the canopies are fuller and less sunlight reaches the floor. This has resulted in the plant species that depend on these specific conditions (and their associated wildlife species) becoming rare and endangered. Probably the best-known example of this is the decline of wild blue lupine (a plant often found in pine barrens). As the lupine declines, so too do the Karner blue butterflies that use them as their sole food source. The Karner blue is currently listed as endangered in New Hampshire and nationwide.

Atlantic white cedar swamps

Atlantic white cedar swamps (also referred to as cedar bogs) grow primarily on organic soils (commonly termed "peat' or "muck") which are usually saturated by water for long periods of the growing season. The key to understanding these unique areas is the relative absence of an inflow or outflow of water, which creates a nutrient-poor, highly acidic environment. Instead, water levels within the habitat rely on immediate precipitation. Thus, these swamps generally have high water levels in spring, when the snow melts, that gradually decline through summer and fall. The unique conditions invite the growth of other species such as red maple, black gum, sphagnum moss, red chokeberry and round-leaved sundew. Several rare species often make these areas their home, such as the larvae of the Hessel's Hairstreak butterfly, which feeds exclusively on Atlantic white cedar, and the endangered Banded Bog Skimmer dragonfly.



The general distribution of cedar bogs in the state (there are 30 documented swamps in 20 towns) is concentrated in three major areas: the Rye-Portsmouth area; the Newton-Kingston area; and in several inland areas running from Sutton to Antrim. However, deep in the heart of



Banded Bog Skimmer dragonfly

northwest Manchester lies a 596-acre preserve that contains an outstanding assemblage of rare wetland habitat made up of Atlantic white cedar, sphagnum moss, black gum, giant rhododendron, swamp azaleas and sweet goldenrod. Atlantic white cedar swamps are extremely sensitive to development, as it often results in a disruptive change in the water table, water flow, flooding or water chemistry. These changes have led to a loss of characteristic swamp plant species and their associated wildlife species.

Salt marsh on Great Bay.

Salt marsh

New Hampshire's 18-mile Atlantic coastline and areas along the Piscataqua and Cocheco Rivers and around Great and Little Bays are home to approximately 6,200 acres of salt marsh. Salt marshes are complex and rare ecosystems, delicately balanced between the marine and terrestrial environments. Although they often appear as flat, featureless meadows of salt-tolerant grasses, healthy salt marshes serve several important functions — such as improving the water quality of coastal waters and providing habitat for numerous fish, birds and other wildlife. Salt marshes are laced with a system of meandering creeks that drain fresh water from the marsh and distribute tidal salt water throughout the marsh. This constant flux between fresh and salt water creates an environment to which only a few plant species, such as salt marsh cordgrass, glasswort and Widgeon grass, are adapted.

Cordgrass

The most important requirement of a healthy salt marsh is adequate tidal flow. However, changes to the landscape by humans, such as the construction of roads and railroads and the use of culverts, have often impeded the ocean's salt waters from traveling their full distance upward into freshwater rivers. When such restrictions to tidal flow occur, the marshes are often degraded, because they no longer perform their proper ecological functions. Current efforts to restore salt marshes focus on removing impediments to allow the twice-daily tidal cycle to bring salt waters into the marsh.

WEB

Activities Related to Articles in This Issue

Project WET suggests:

By solving the mystery of *Where Are the Frogs?*, students learn how a disruption in the quality of an organism's habitat can threaten its existence.

Students participate in the *Life in the Fast Lane* scavenger hunt to understand the unique habitat of vernal pools.

In *Salt Marsh Players*, students role play how organisms interact in a salt marsh habitat.

Project Learning Tree suggests:

From icy tundra to scorching deserts to salty oceans, the world's habitats are diverse and fascinating. In *Habitat Pen Pals*, students learn about the diversity of habitats around the world by writing letters from the perspectives of organisms living in a variety of habitats.

In *Field, Forest, and Stream*, students examine three different environments, focusing on sunlight, soil moisture, temperature, wind, plants and animals in each environment.

400-Acre Wood gives students the opportunity to act as managers of a 400-acre piece of public forest. Through these roles, students begin to understand the complex considerations that influence management decisions about forest lands.

Project WILD suggests:

In the activity *Habitat Lap Sit*, students physically form an interconnected circle to demonstrate components of habitat.

Students are introduced to the concepts of carrying capacity and limiting factors, while actively portraying deer and habitat components in *Oh Deer!*

In *The Beautiful Basics*, students list, organize and compare the basic needs of people, pets and wildlife.

Students are led through the process of designing and accomplishing a project to improve wildlife habitat in their community in *Improving Wildlife Habitat in the Community*.

ANNOUNCEMENTS

Upcoming Projects Workshops

March 6 – joint Project WET, WILD, and Learning Tree at Kingman Farm in Madbury. For more information, contact 271-4071 or nclegg@des.state.nh.us.

March 13 & April 3 – 2-part Project HOME at the NH Fish and Game Department in Concord from 8:30 a.m. – 12:30 p.m. For more information, contact Marilyn Wyzga at 271-3211 or mwyzga@wildlife.state.nh.us.

March 20 – Project WILD at the NH Fish and Game Department in Concord from 8:30 a.m. – 3:30 p.m. For more information, contact Mary Goodyear at 846-5108 or mgoody@ncia.net.

March 27 – Project WET at the Amoskeag Fishways in Manchester from 9:00 a.m. – 3:00 p.m. For more information, call 626-FISH.

March 27 – Project WET at the Seacoast Science Center in Rye. For more information, call 436-8043.

Register your school for the 2004 "Linking Science with Math & Language Arts" Summer Institute

The Projects, along with the GLOBE Program and the U.S. Forest Service, will be hosting a week-long summer institute on August 16-20 at Barry Conservation Camp in Berlin, NH. The theme is "Linking Science with Math & Language Arts" and will feature all of our programs. Any school teams of 3-5 participants interested in attending this event should contact Beth Lesure at 226-0160 or beth@nhplt.org.

Teachers needed for development of NH Natural History unit

The Projects are interested in forming a planning committee to develop a unit for studying the natural history of New Hampshire. Any educator wishing to be part of the committee should contact Esther Cowles at 226-0160 or esther@nhplt.org.

Homes for Wildlife Action Grants

Get your students in on some "wildlife action"! Apply for a "Homes for Wildlife Action Grant" of $300 – or $600 with matching funds – for projects that involve students in enhancing wildlife habitat. Deadline is February 15. For a proposal packet, contact: Marilyn Wyzga, Public Affairs Division, NH Fish and Game Department, 11 Hazen Drive, Concord, NH 03301, mwyzga@wildlife.state.nh.us; 271-3211.

Wendy Oellers recognized as a 2003 National PLT Outstanding Educator

Congratulations to Wendy Oellers of Gilford Elementary School for being recognized as a 2003 National PLT Outstanding Educator of the year. Wendy received her honor at the PLT Annual Conference in June.

Rockingham and Strafford County middle school classes wanted for water use study

Middle school classes in Strafford and Rockingham Counties are needed to participate in a water use study for any 4 weeks between February and May of 2004. Classes who participate are eligible to receive a free classroom presentation about groundwater and other resources. For more information, contact Nicole Clegg at 271-4071 or nclegg@des.state.nh.us.

NH Environmental Educators Annual Meeting Set for March 10

Join us for workshops, dinner, and presentation by bear researcher, Ben Kilham, on Wednesday, March 10, 2004, at the Squam Lakes Natural Science Center. For more information, visit www.neeea.org/nh.

Wildlife workshop at Squam Lakes Natural Science Center

If you're a fourth grade teacher who wants to know more about New Hampshire wildlife to be comfortable sharing wildlife topics with your students, here's the training opportunity for you! Join Squam Lake Natural Science Center and New Hampshire Fish and Game staffs at the Squam Lake Natural Science Center in Holderness, March 30, April 6, 13 and 20, from 4:00-8:00 pm. Cost of $150 covers the entire series. Contact Eric D'Aleo at 968-7194 or eric.daleo@nhnature.org.

Fourth Grade Water Science Fair set for May 3

Science projects about such topics as the water cycle, wetlands, and water treatment will be plentiful at the eleventh annual NH Fourth Grade Water Science Fair, scheduled for Monday, May 3, 2004, in Manchester, NH. For more information, contact Nicole Clegg at 271-4071 or nclegg@des.state.nh.us.

Walk in the Forest Teacher Workshops – May 8 and 15

Join us for a *Walk in the Forest* workshop on May 8 (at the Conservation Center in Concord) or May 15 (in Bethlehem). For more information, contact Beth at 226-0160 or beth@nhplt.org.

2004 NH Envirothon set for May 18

High school classes are invited to participate in the 2004 NH Envirothon, a high school competition designed to build knowledge of water resources, forests, soils, wildlife, and current environmental issues. For more information, contact Herb Vadney at 279-3436 or vadney@metrocast.net.

Register for the 2004 Coastal Cleanup

Looking for a volunteer opportunity for your class? Participating in the annual Coastal Cleanup is a great way to get your students involved in their community. Volunteers are currently being sought for the 2004 cleanup, scheduled for Friday, September 17, 2004, at various beaches along New Hampshire's seacoast. For more information, contact Verna DeLauer at 271-2155.

Watershed Ecology – A course for Science Educators, Youth Leaders and Community Leaders

Watershed Ecology is an undergraduate and graduate-level summer program geared towards science educators and community leaders. The course is coordinated by staff from N.H. Fish and Game Dept. Each day specialists will focus on a particular aspect of watershed ecology. Hands-on, experiential learning is emphasized in both field and classroom settings. The course offers techniques for applying science in real world situations. This course can be taken for 2 credits from the UNH Division of Continuing Education, or as a non-credit course. July 26 –August 6, 8:30 am – 4:00 pm, Bow High School, Bow, NH. Call Aquatic Resources Education at 271-3212 for more information.

ON THE

H.O.M.E. FRONT

Getting Wild in the City: Urban Habitat Takes Shape at Kelley School

BY MARILYN WYZGA

PHOTOS BY MARILYN WYZGA

Students and parents plant the new habitat area according to the plan (background).

Habitat is where it's at, and there's a lot of habitat happening at a small urban school in Newburyport, Massachusetts. You may think a schoolyard habitat project can't happen in the city, but read on – it makes a difference when everyone gets involved. Every grade at Kelley School participated in changing a dark, paved alley into a lively outdoor classroom, filled with native plants and wildlife learning opportunities.

In the brochure created by Mrs. Savey's fourth graders – which documents the whole process – the students explain why they took this on: "This project is important because it will add more wildlife to the earth and make the school more peaceful. We are hoping it will attract wildlife, protect the environment and let kids learn about the environment." Sounds pretty simple. Here's how they made it happen.

Student maps and inventory results proudly displayed in the hallway of Kelley School.

It started with a Project HOME training for three Newburyport schools, arranged by staff development coordinator, Bob Griffiths. The Kelley principal, Jennifer Roberts, had garnered grants from Pacific Gas & Energy; Community Service Learning; and Sense of Place (funding community history studies), as well as a memorial donation.

It was clear from the start that available habitat area was limited. The alley alongside the school would be the ideal place to begin. Before the three-part workshop was even completed, the alley was clear of pavement.

The principal remarked that the habitat project elicited a "different kind of response" from her staff. It inspired participation. Faculty engaged in the training. They discussed which features should be retained. They volunteered their classes to take on different parts of the project. From the youngest to the oldest, here are their contributions:

Mrs. Ahern's kindergarteners drew pictures of the houses birds might like to have in the habitat. They decided they wanted a bird blind to accompany their imaginative birdhouse designs. Mrs. Andrake's first graders researched wildlife using books and the Internet. They drew a poster of the native animals they might attract: mammals (like chipmunks, foxes, and squirrels), birds (such as hummingbirds, cardinals and mourning doves), and insects (including butterflies, ladybugs and bees). The first graders in Mrs. Johnson's class conducted a site inventory, looking at what landscape features the site already contained, and identifying spaces available for education. They assessed the characteristics of the site, noting that healthy soil and water would be needed to make the garden alive. Mrs. Atkins' second graders sketched the view from different vantage points, made a key and symbols, and produced a color map. Under Mrs. Barrow's direction, third graders who were studying maps of Newburyport made two maps, one showing existing features, and the other, students' ideas for attracting more wildlife. A school-

continued on next page

Young students water the new habitat plants.

continued from previous page

wide survey was conducted by Mrs. Brenwick's third graders, to find out what everyone wanted in a schoolyard habitat. Their tallied results identified the top 6 choices, which included a pond, benches, bird feeders and flowers.

The fruits of all these labors were displayed with pride in the school's main hallway. A colorful banner welcomed visitors to "Our Schoolyard Habitat." Once the pavement was dug out of the alley, installation proceeded quickly. It turned out the library assistant, Gretchen Joy, was also a landscape designer. She drafted a planting design. A parent built the bird blind. Young students and their parents gathered for dig-and-plant days.

Because of the northern exposure of the alley, they chose plants that would adapt to shady conditions. The mix of natives and ornamentals includes: arrow-wood, cotoneaster, rhododendrons, *Geranium maculatum*, *Ilex glabra*, *Itea Virginiana*, Virginia creeper, Solomon's seal, foam flower, columbine, and ostrich, cinnamon and hay-scented ferns.

The dramatic makeover was followed in 2002-03 with the appointment of a habitat coordinator, to oversee the area and assist teachers in using the new habitat.

A narrow alley is transformed into a schoolyard habitat at Kelley School.

Project WILD receives Federal financial assistance from the US Fish and Wildlife Service. Under Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, Title II of the Americans with Disabilities Act of 1990, the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972. The US Department of the Interior and its bureaus prohibit discrimination on the basis of race, color, national origin, age, disability, religion or sex (in educational programs). If you believe that you have been discriminated against in any program, activity, or facility, or if you desire additional information please write to:
The US Fish and Wildlife Service
Office for Diversity and Civil Rights Programs – External Affairs
4040 N. Fairfax Drive, Suite 130, Arlington, VA 22203

WEB Connections for this issue:

www.wildnewengland.org
www.wildlife.state.nh.us
www.nwf.org

Coordinator Information

Mary Goodyear
Project WILD
N.H. Fish and Game Dept.
RR1, Box 241
Whitefield, NH 03598
(603) 846-5108
mgoody@ncia.net
www.wildlife.state.nh.us

Nicole Clegg
Project WET
N.H. Department of
Environmental Services
29 Hazen Drive
Concord, NH 03301
(603) 271-4071
wet@des.state.nh.us
www.des.state.nh.us/wet

Esther Cowles
Project Learning Tree
54 Portsmouth Street
Concord, NH 03301
(800) 677-1499
esther@nhplt.org
www.nhplt.org

New Hampshire
Fish & Game Department
11 Hazen Drive
Concord, NH 03301

PRSRT STD
U.S. POSTAGE
PAID
CONCORD, NH
PERMIT #1478

PRO0308B